String Quartet XVII in Polytempic Polymicrotonality
“5-7-11-13”

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Notes I

The Tuning Legend is located on the last page of the score! As for all performance notes, there is really nothing to explain as all are self-evident.

Notes II

This piece of music has culminated over the years since age 18, behind a drumset, I began experimenting with simultaneous polyrhythms in all limbs of my body: left hand in 4/4; right hand in 7/4; left foot in 3/4; and right foot, in 5/4. These were all met by a common downbeat, so the meters were simultaneous and in differing speeds, hence polytempo. My eventual arrival at composition was predicated on these discoveries as a drummer, rather than the usual pianist based composer.

Polytempic Polymicrotonality is an extension of this idea. The polymicrotonal aspect, bonded to the meter/tempo is fundamental in the aesthetic conception that ultimately divides the music into four separate systems; there is no common fundamental and no common meter/tempo that acts as a master grid for the disparate parameters of this music. This is intentional and is the only poly systemic structural music of this kind in existence. This music is the opposite of unity: the different tunings do not share a common source, such as the overtone series, nor do the tempos share a master metric function. The point is that as this music progresses on the listener's ears, a great deal of information is being put forth, which can be construed as a highly fine graining accompanied by entropy peculiar to whomever is listening. For some, there will be no noticeable changes, low entropy, while for others, there will be a great deal of changes, hence high entropy.

In these notes, there will be some talk of physics, which may be a bit off-putting, but since I don't care, I will include them.

These notes were written in collaboration with an interlocutor named Maximus Thoegersen, my son.

program notes on String Quartet 17

May 05, 2026

I. If Everything in the Universe Is One Electron, What If Music Is Just One Note

The Reductive Reading

The one-electron universe is the right pressure to apply here, but the metaphor forks immediately depending on which direction you push it.

The reductive reading — everything is one note, one vibration, the harmonic series is just elaboration of a fundamental — leads straight to just intonation ideology, Pythagorean mysticism, the universe humming at A=432. That is the boring version. It reinstates the **master fundamental** already dismantled.

The Wheeler Reading Done Correctly

The one electron is not simple — it is everywhere at once, tracing every possible path through spacetime simultaneously. If music is one note, it is a note that occupies four independent tuning systems at the same moment, each with its own tempo, none of them reporting to a center. The singularity produces the irreducible multiplicity rather than collapsing it.

Which means polytempic polymicrotonality may be the more faithful musical analog to Wheeler than any drone tradition. The drone assumes oneness means stillness and convergence. Polytempic polymicrotonality assumes oneness means total simultaneous occupation of incommensurable positions — which is what an electron actually does.

The Musical Positron

There is also a temporal dimension Wheeler forces: the electron moving backward through time is the positron. It is not a different entity — it is the same entity under time-reversed parameterization.

The musical equivalent is precise: a system whose tempo evolution is the inverse mapping of another system, while preserving the full ratio structure. Same 3:4:5:7 ratios. Same tuning-tempo bonds. Reversed traversal. The positron is not meter running arbitrarily backward — it is a structurally identical system whose directional parameter is negated. This is not yet composed. It is a region of the four-dimensional space that exists and has not been entered.

Argument in One Line

The one-note universe, done correctly, is an argument against drone mysticism and for plural incommensurability. The singularity produces multiplicity. The blog post writes itself.

II. Many Worlds Theory as Polytempic Polymicrotonal Music

Cage Is Copenhagen, Not Quantum

Most quantum music analogies get this backwards.

Chance procedures simulate the appearance of quantum randomness — the collapsed outcome from inside one branch. But Copenhagen is actually determinist at the wavefunction level; randomness is only apparent, only local. Stochastic composition is musically Copenhagen: it picks one outcome and discards the rest. The radical gesture turns out to be classical.

Many Worlds is fully determinist. The wavefunction evolves by strict equations. Nothing is random. Everything happens. Polytempic polymicrotonality is also fully determinist — fully composed, no indeterminacy, no performer choice. The four tuning systems all occur simultaneously by necessity. It does not randomize; it refuses to collapse.

Structural Homologies

Copenhagen = tonal hierarchy. Measurement collapses the wavefunction to a single value. The tonic is the measurement event — everything resolves, one outcome selected, the rest discarded. Every cadence is a Copenhagen collapse.

Many Worlds = polytempic polymicrotonality. No collapse. The wavefunction branches and all branches are equally real, causally isolated, non-communicating. The four tuning systems in String Quartet No. 17 are four branches: fully real, pursuing independent trajectories, never negotiating toward merger.

Decoherence as Tuning-Tempo Bonding

The mechanism that makes Many Worlds branches stable and non-interfering is decoherence — environmental entanglement that suppresses observable interference terms between branches. In this system, the bonding of each tuning to its own independent tempo and meter is the decoherence mechanism. What is being suppressed is specific: no shared periodicity across systems, no common harmonic alignment, no phase-locking between tuning layers. The bonding prevents the tuning systems from collapsing into each other. The structural innovation is the physics.

The Wavefunction Is the Score

In Many Worlds, the wavefunction never collapses — it keeps branching. The score of SQ17 is the wavefunction: the total simultaneous structure, all branches present, none privileged. Performance is not collapse but traversal. The listener does not select a branch by listening — they are inside the branching, which is what Everett says about observers: they split too. There is no view from outside.

The Preferred Basis Problem

Many Worlds has an unresolved question: what determines which branches split? The preferred basis problem. This system does not solve that problem — it is not physics. But it independently instantiates a structure isomorphic to the problem's requirements: a basis that is generated rather than imposed, grounded in the irreducible ratio logic of 3:4:5:7, with branches (15, 14, 22, 26 TET; 5/4, 7/4, 11/4, 13/4) determined by foundational structure rather than external observer selection. The analogy is structural, not decorative.

Argument in One Line

Cage gave you randomness and called it quantum. Polytempic polymicrotonality gives you determined multiplicity with no collapse. Only one of those is actually Many Worlds.

III. Preferred Basis as a Four-Dimensional Space Represented by 3:4:5:7

Orthogonality as Incommensurability

In standard Hilbert space, basis vectors are orthogonal — they do not project onto each other, cannot be decomposed into each other. In the 3:4:5:7 space, orthogonality is incommensurability. 3, 5, and 7 are mutually prime. 4 (= 2^2) shares no common factor with 3, 5, or 7. They cannot reduce to each other. That irreducibility is the orthogonality. The preferred basis selects itself because it is the unique minimal set of incommensurable integers that simultaneously generates rhythm, tuning, and meter as a unified structure.

The ratio was not chosen. It emerged from four-limb drumming independence in 1985 — discovered under physical constraint, not designed from theory. The question of why not 11 or 13 at the same foundational level has an answer that precedes argument: they were not there when the hands arrived at the structure. Genesis is not assertion.

The Four Axes

Each dimension of the space is not a number but an entire musical universe: a rhythmic ratio, a tuning system, a metric structure, a polygon. The 3-axis is triangle space — everything that unfolds in threes. The 4-axis is square space. The 5-axis pentagon. The 7-axis heptagon. A moment in SQ17 is a coordinate in this four-dimensional object: a specific simultaneous position along all four axes. No axis reports to the others.

Pointer States

Many Worlds' preferred basis problem is approached through pointer states — configurations stable under environmental decoherence. In this system the pointer states are the tuning-tempo bonds themselves: 15-TET/5/4 is one stable pointer, 14-TET/7/4 another, and so on. They are stable precisely

because the bonding prevents inter-axis interference. The ratio structure enforces this. 3:4:5:7 is the only basis not because it is declared to be, but because no other configuration emerged from the same constraints.

The Space Is Larger Than Any Work

This is the generative implication. SQ17 traces a particular trajectory through the four-dimensional space. The space itself is the compositional universe — every work is a path, not the territory. Different TET systems (28, 42, other resonant values) would be different regions of the same space, not departures from it. The polygon product space — triangle × square × pentagon × heptagon — is the Hilbert space of the system, and the composer has been mapping it since 1985 without having named the container until now.

Philosophical Payoff

Physics has not resolved the preferred basis problem. This system has a structural analog to an answer: the basis is preferred when it is generated rather than imposed, when the integers select themselves through mutual incommensurability bonded to ratio-logic that simultaneously organizes pitch and rhythm. The isomorphism is tighter than most art-science analogies because it is constraint-based rather than decorative.

The music does not illustrate the physics. **It is ahead of it.**

Score

String Quartet 17 in Polytempic Polymicrotonality

5-7-11-13

Peter Thoegersen

Adagio

Staccato Giusto

1 **♩ = 60**

Violin 15tet I

p

1 **♩ = 72** *con moto*

Violin 14tet II

p

1 **♩ = 75.4** *più mosso*

Viola 22tet

p

1 **♩ = 66.85** *meno mosso*

Cello 26tet

p

8 portamento-gliss

Vln. I

f *ff* *ffff*

7 portamento-gliss

Vln. II

f *ff* *ffff*

5 portamento-gliss

Vla.

f *ff* *ffff*

4 portamento-gliss

Vc.

f *ff* *ffff*

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15 detache

Vln. I

13 detache

Vln. II

9 detache

Vla.

7 detache

Vc.

22

Vln. I

19

Vln. II

13

Vla.

10

Vc.

29
Vln. I
25
Vln. II
17
Vla.
13
Vc.
f

36
Vln. I
31
Vln. II
21
Vla.
16
Vc.
ff

43
Vln. I
f
37
Vln. II
f
25
Vla.
f
19
Vc.
f

50
Vln. I
mf
43
Vln. II
mf
29
Vla.
mf
22
Vc.
mf

57
spicc.
Vln. I
ff
49
Vln. II
ff
33
arpeggiate quickly, if not all at once
Vla.
ff
25
sul GDA
sul CGD
Vc.
ff
VI
VI

64
spicc.
Vln. I
ff
55
spicc.
Vln. II
f
37
leggiero
spicc.
punta d'arco
al tallone
Vla.
mf
28
leggiero
spicc.
punta d'arco
al tallone
Vc.
mf

71 spicc.
Vln. I
fff mf
61 spicc. al tallone
Vln. II
fff ffff mf ffff mp
41 spicc.
Vla.
fff mf ff
31 spicc.
Vc.
fff mf

78 spicc.
Vln. I
mp
67 spicc.
Vln. II
mp
45 spicc.
Vla.
mp
34 spicc.
Vc.
mp

85 con sord.
Vln. I
p fff f
73 con sord.
Vln. II
p fff f
49 con sord.
Vla.
p circular bowing ff pp f
37 con sord.
Vc.
p ff fff mp

92 detache senza sord.
Vln. I
mf
79 detache senza sord.
Vln. II
mf
54 detache senza sord.
Vla.
mf
40 senza sord. pizz.
Vc.
f arco detache senza sord. mp

99
spicc.
ricochet
continue bowing after bouncing stops
Vln. I
Vln. II
85
jete
saltando
59
portato
Vla.
43
Vc.
106
circular bowing
91
pizz.
arco
63
sempre arpeggio
46

Font size changes are only for horizontal note space clarity as I did not want to rebar the staves

113 *animato*

Vln. I

Vln. II

Vla.

Vc.

97 arco

67 pizz. arco

49 pizz.

sul pont.

punta d'arco

120

103

71 arco

52 pizz.

sul pont.

ord.

124 detache
Vln. I
mf mp f sf sfz fz

109 detache
Vln. II
mf f

75 detache
Vla.
mf f

55 arco detache
Vc.
mf f

131
Vln. I
f ff p mf

115
Vln. II
mp ff

79
Vla.
p ff mf

58
Vc.
p ff mf

138
Vln. I
f
fff
mp
mf
121
Vln. II
f
ff
83
Vla.
f
ff
61
Vc.
f
ff

145
animato
Vln. I
ff
p
fz
pp
f
mp
ff
127
Vln. II
ff
mf
ff
mp
fff
87
sul pont.
Vla.
ff
f
mp
mf
mp
ord.
f
64
pizz.
arco
Vc.
ff
mp
mf
ff
mp

152
Vln. I
133
Vln. II
92
Vla.
67
Vc.
ord.
sostenuto
159
Vln. I
140
Vln. II
96
Vla.
70
Vc.

166
Vln. I
146
Vln. II
100
Vla.
73
Vc.
scratch bow hard
ord.
circular bowing
punta d'arco
sul pont.
al tallone
173
152
104
76
leggiero
scratch bow hard

180 detache
Vln. I
mp
15/4
tr trill to 80 cent F#
molto rit.
ff
158 detache
Vln. II
mp
pizz.
ffff
sffz
sfz
sf
fz
108 detache
Vla.
mp
pizz.
arco
flautando
sffz
ppp
14/4
f
79 detache
Vc.
mp
f
p
fff
pizz.
ffff

a tempo
185 sul pont. punta d'arco
arco
Vln. I
pp
5/4
mp
mf
164 sul pont. punta d'arco
arco
Vln. II
pp
mp
f
111 sul pont. punta d'arco
arco
Vla.
pp
circular bowing
mf
10/4
p
3/4
15/8
vary bow pressure
mp
4/4
tr
82 sul pont. punta d'arco
arco
Vc.
pp
mp
f

192 spicc. ord. detache

Vln. I

mf *f* *p* ♭ Bb at 560 cents *tr* *mp*

170 spicc. ord.

Vln. II

mf *fff* *ppp*

116 spicc. ord.

Vla.

mf *ff*

85 spicc. ord.

Vc.

mf *ff* *pp* *fz* *sfz* *sfffz*

199 spicc.

Vln. I

f

176 spicc.

Vln. II

f spicc.

120

Vla.

f spicc.

88

Vc.

f

206
Vln. I
spicc.
ff
fff
182
Vln. II
spicc.
ff
mp
fff
124
Vla.
spicc.
ff
mf
ff
91
Vc.
spicc.
ff
mf
f

221
Vln. I
mf
mp
ff
188
Vln. II
mp
mp
mf
f
ff
128
Vla.
p
mf
ff
mp
fff
94
Vc.
punta d'arco
pp
mf
f
ff
al tallone
p
scratch bow hard
fff

220
Vln. I
spicc.
circular bowing
ord.
194
Vln. II
132
Vla.
spicc.
97
Vc.
spicc.
portato
secco molto
224
Vln. I
con sord.
200
Vln. II
con sord.
136
Vla.
con sord.
100
Vc.
sul pont.
portato

239
Vln. I
(sord)
jete
jete
206
Vln. II
(sord)
spicc.
sul pont.
(sord)
140
Vla.
con sord.
sul pont.
103
Vc.
sempre
238
Vln. I
(sord)
scratch bow hard
212
Vln. II
(sord)
spicc.
dotted 16ths
jete
16th notes without dot
144
Vla.
(sord)
vary bow pressure
113
Vc.
(sord)
spicc.
sul pont.

senza sord.
molto rit.
♩ = 51.42
251
Vln. I
espressivo
ff *f* *mf* *pp* *f* *ppp* *pp* *ff*

♩ = 60
216
Vln. II
senza sord.
detache
ff *p* *fff* *ppp* *ff*

♩ = 66.85
147 (sord)
Vla.
sul pont.
sul tasto
ff *mf* *ppp*

(sord)
♩ = 58.28
116
Vc.
sul pont.
ord.
sul tasto
ff *mf* *sfz* *sffz* *sffz* *mf*

Lento *molto rit*
♩ = 42.85
257
Vln. I
f *mf* *mfp* *p* *mf* *p*

Largo
♩ = 51.42
221
Vln. II
f *p* *f* *ppp*

Adagio
senza sord.
sul pont.
♩ = 58.28
151
Vla.
vary bow pressure
f *fff* *p*

Largo
senza sord.
♩ = 49.71
123
Vc.
sul pont.
flautando
sul pont.
f *p* *mf* *sfzp* *fff* *ppp*

meno mosso
♩= 34.28 ord.
254
Vln. I
mp p fff pp mp mf
233 ♩= 42.85 meno mosso ord.
Vln. II
mp pp mp
153 ♩= 51.42 meno mosso ord.
Vla.
mp pp mp
127 ♩= 46.28 meno mosso ord.
Vc.
mp pp mp

♩= 25.71 meno mosso
secco molto
258
Vln. I
mf fff
229 ♩= 34.28 meno mosso legato
Vln. II
mp mf f
156 ♩= 42.85 meno mosso portato
Vla.
p mp ff
134 ♩= 51.42 meno mosso
Vc.
mp f p

a tempo
primo tiempo da capo

261 ♩ = 60 *marcato*

Vln. I

rallentando

fffff *f*

233 ♩ = 72 **Tempo primo**

Vln. II

fffff *mf*

159 ♩ = 75.4 **Tempo primo**

Vla.

fffff *mf*

137 ♩ = 66.85 **Tempo primo**

Vc.

fffff *f*

Largo

268 ♩ = 40 *meno mosso*

Vln. I

mf *f* *ff*

239 ♩ = 54 *meno mosso*

Vln. II

circular bowing

f *mp* *fff* *pp* *ff* *ppp*

163 ♩ = 56.6 *meno mosso*

Vla.

mf *p* *ff*

140 ♩ = 50 *meno mosso*

Vc.

mp *ff* *sffz* *mf* *sffz* *sffz* *fffff*

273
Vln. I
sul pont.
vary bow pressure
mf
p
mf
ff
245
Vln. II
sul pont.
mp
mf
f
ff
sfffz
sfz
167
Vla.
sul tasto
sul pont.
circular bowing
f
mp
pp
fff
pp
143
Vc.
sul pont.
sul tasto
vary bow pressure
ff
pp
ffff
p
ff
pp

300
Vln. I
ord.
con brio
mf
sfz
ff
sfffz
mf
rfz
mp
sul tasto
sfzp
ff
pp
251
Vln. II
con moto
mf
p
f
ff
pp
ff
fff
p
5
ffff
171
Vla.
con sord.
mp
p
ffff
sul pont.
ppp
146
Vc.
sul pont.
scratch bow hard
vary bow pressure
circular bowing
al tallone
sul pont.
p
fff
f
mp
f
p

288
Vln. I
ord.
ffff
f
mf
mp
ff
fff
ff
257
Vln. II
p
ff
f
ff
fff
mp
f
175
Vla.
(sord)
mp
fff
pp
ff
ppp
sul pont.
p
149
Vc.
con sord.
sul pont.
mf
ff
fff
ord.
ffff
sffz
sf
295
Vln. I
ff
p
fff
pp
ppp
pppp
mf
263
Vln. II
spicc.
fff
senza sord.
ff
pp
pppp
circular bowing
scratch bow hard
ffff
179
Vla.
ord.
legato
f
ppp
mp
152
Vc.
senza sord.
pizz.
f
arco
fff
sul pont
ffff
ppp
pizz.
mf

302 appassionato al tallone

Vln. I

273 espress.

Vln. II

pizz.

183

Vla.

pizz. glissando

160

Vc.

309 cantabile

Vln. I

279

Vln. II

con brio sul pont. ord. scratch bow hard scratch bow hard sul pont.

187 arco

Vla.

(pizz) glissando

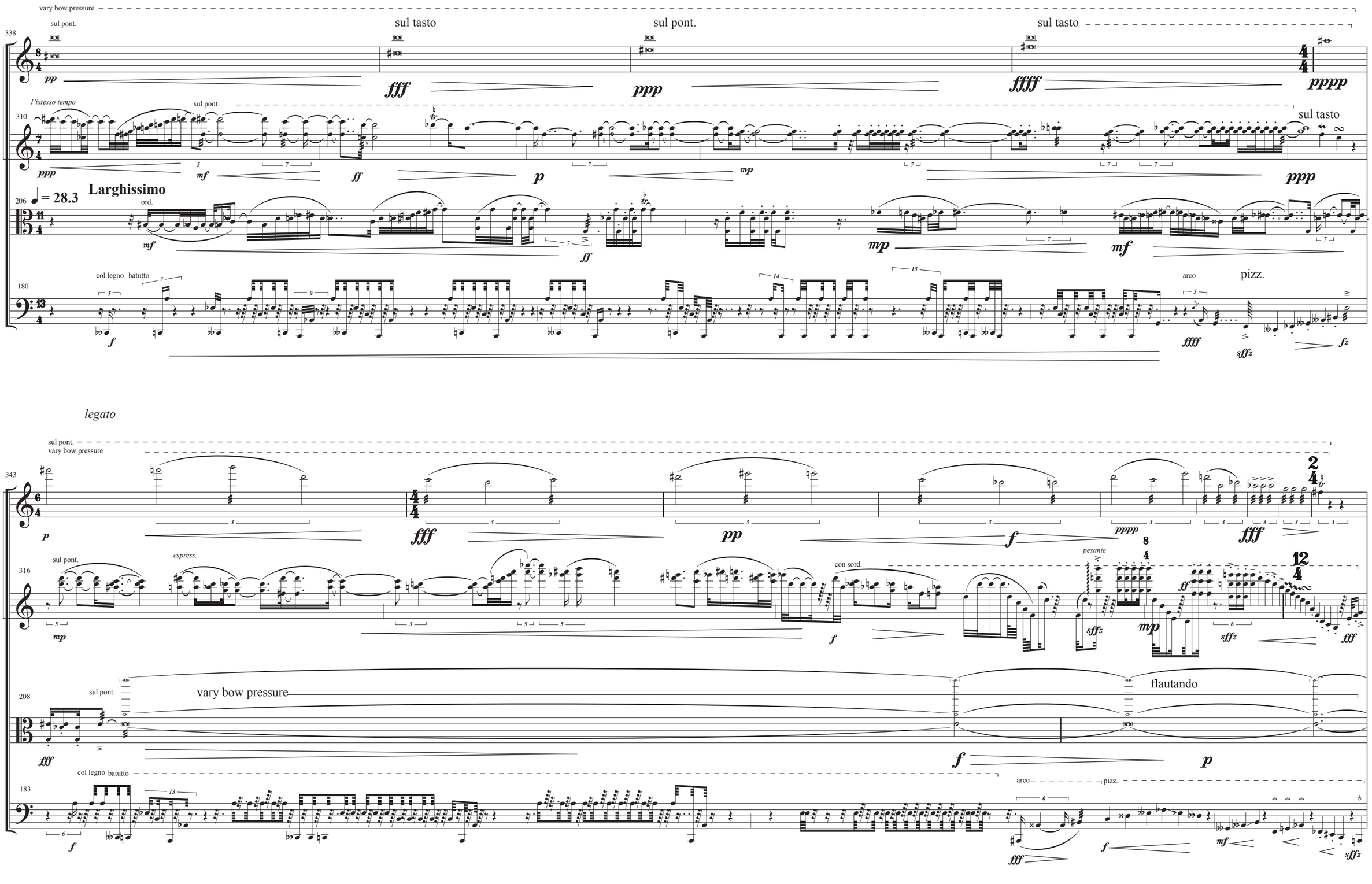
163

Vc.

316
Vln. I
furioso
scratch bow hard
285
Vln. II
con brio
vary bow pressure
191
Vla.
sul pont.
espressivo
166
Vc.
(pizz)
glissando
323
Vln. I
291
Vln. II
195
Vla.
ord.
169
Vc.
(pizz)
arco
scratch bow hard
sul tasto
punta d'arco
flautando
vary bow pressure
pizz.
arco

331
Vln. I: detache — vary bow pressure — 31/8 — f — fff
297
Vln. II: con sord. — ff — mp — ff — sffz — sfz — p — ff — mp
199
Vla.: ord. — f — fff — mf — ff — flautando — fffff — pp
174
Vc.: arco — ord. — pp — f — p — ff — fff — mf — fff — mf — p — pizz. — ppp — fff — sfz — pp — sffz

333
Vln. I: vary bow pressure — sul pont. — p — fff — mf — sul tasto — ppp — sul pont. — 3/4 — mp
303
Vln. II: sul pont. — f — senza sord. ord. — ffff — pp — mf
203
Vla.: pesante — f — ff — fff — leggiero — mf — sul pont. — ffff — vary bow pressure — circular bowing — fp
177
Vc.: pizz. — mf — ffff — col legno batutto — mp — pizz. secco molto — p — ffff — pp — sffz


vary bow pressure
sul pont.
sul tasto
sul pont.
sul tasto
338
Vln. I
pp
fff
ppp
fffff
pppp
l'istesso tempo
sul pont.
310
Vln. II
ppp
mf
ff
p
mp
ppp
sul tasto
Larghissimo
206
= 28.3
Vla.
ord.
mf
ff
mp
mf
col legno batutto
180
Vc.
f
ffff
arco
pizz.
sffz
fz
legato
sul pont.
vary bow pressure
343
Vln. I
p
fff
pp
f
pppp
fff
sul pont.
espress.
316
Vln. II
mp
f
con sord.
pesante
sffz
mp
ff
sffz
fff
sul pont.
vary bow pressure
208
Vla.
fff
f
flautando
p
col legno batutto
183
Vc.
f
arco
pizz.
fff
f
mf
sffz

351 ♩= 25.7 *meno mosso*
Vln. I: ord. *misterioso* — *pp* — *p* — *ppp* — *mf* — sul tasto — *p*

321 ♩= 27 (sord) *meno mosso*
Vln. II: ord. — *ppp* — scratch bow hard — *ffff* — *f* — *pp*

210 *l'istesso tempo*
Vla.: ord. — *mf* — *fff* — sul pont. — *p*

186
Vc.: arco — *mf* — pizz. — *f* — arco — *mp* — arpeggiate quickly, if not all at once — *ff*

365 *dolce*
Vln. I: *mp* — *mf* — *f* — *fz*

324 sul pont.
Vln. II: *p* — ord. — *mf* — senza sord — *f* — *fff*

212
Vla.: sul tasto — *ppp* — *pppp* — *mf*

189
Vc.: sul pont. — *pp* — ord. — *fff* — *fff* — *f* — *sffz* — *f* — *fp* — *mf* — *sffz* — pizz. — *mp* — *pp*

359
Vln. I
ord.
p
mf
f
fff
pizz.
arco
sffz
ffff
327
Vln. II
sul tasto
p
mf
p
ff
flautando
214
Vla.
f
pp
fff
scratch bow hard
mf
192
Vc.
arco
sul GDA
vary bow pressure
scratch bow hard
sffz
sfz
f
ffff
fff
ord.
mf
ff
mf
pizz.
ff
363
Vln. I
mf
fff
mf
f
mp
ff
330
Vln. II
ord.
tranquillo
mf
mp
p
216
Vla.
mf
p
mf
195
Vc.
sul pont.
pizz.
f
p
sffz
sfz
sf
ff

377
Vln. I
333
Vln. II
218
Vla.
198
arco
sul tasto
ord.
pizz.
Vc.

371
vary bow pressure
Vln. I
336
scratch bow hard
sul pont.
sul tasto
Vln. II
220
sul pont.
al tallone
ord.
Vla.
201
arco
ord.
scratch bow hard
sul tasto
pizz.
Vc.

375 *con brio*

Vln. I

339 sul pont.

Vln. II

222 sul tasto ord.

Vla. sul pont.

204 arco sul pont. ord. pizz.

Vc.

379

Vln. I

342 sul pont. sul tasto scratch bow hard sul tasto ord.

Vln. II

224 ord.

Vla.

207 arco sul pont. ord. pizz. arco

Vc.

383
Vln. I
345
Vln. II
226
Vla.
210
Vc.
ricochet
sul pont.
ord.
arco
ord.
marcato
sul pont.
ord.
pizz.
vary bow pressure
sul pont.
387
con sord. sempre
Vln. I
350
ord.
Vln. II
sul pont.
pizz.
228
vary bow pressure
Vla.
215
sul pont.
ord.
pizz.
Vc.

391
Vln. I
mf
mp
p
fff
353
pizz.
Vln. II
ff
mf
sffz
sfz
229
con sord.
sul pont.
ord.
scratch bow hard
Vla.
pppp
fffff
n
218
con sord.
spicc.
spiccato volante
Vc.
pp
f
ff
pp
fff
pp
fff
p
ffff
pizz.
ppp
ffff

395
Vln. I
ff
mp
ppp
ff
ppp
fz
sfz
sffz
356
Vln. II
230
230
Vla.
221
arco
(sord)
sul pont.
ord.
vary bow pressure
col legno batutto
LH pizz
pizz.
Vc.
p
fff
ffff
ppp
ff
pp
ffff
mp
fff

399 ord. *pesante* senza sord.

Vln. I

359 arco

Vln. II

pizz. secco molto

Vla.

224 pizz. col legno batutto pizz.

Vc.

403 *espressivo* *animato*

Vln. I

362

Vln. II

arco flautando

Vla.

227 pizz. col legno batutto pizz.

Vc.

407 *l'istesso tempo*

Vln. I

mp 15 *pp* *ff* *ff* 14

365 *l'istesso tempo*

Vln. II

mp *mf* *ff* *f* 14 15 *sf* *fz*

l'istesso tempo staccatissimo secco molto 12 Sul C, G scratch bow hard

233

Vla.

f *fffff*

arco

230 ♩ = 33.4 *meno mosso* sul pont. sul tasto ord.

Vc.

p *f* *mp* *mf* *fff* *ff*

sul tasto
punta d'arco

411

Vln. I

pp 13 15 *mf* 11 *mp* 15 *f*

368 sul pont.

Vln. II

ppp *fz* *sfzp* 15 *fp*

sul pont. sul tasto

234

Vla.

sfz *sfzp* *ffff* *p* *ff* *sfpp*

pizz. a la chitarra arco

236

Vc.

mp 9 5 3 14 13 *ff* 12 *mf* 6 *sfzp*

415
Vln. I
ord.
371 pizz.
Vln. II
let ring
let ring
236 sul pont.
Vla.
col legno batutto
238 pizz.
Vc.
arco

419 pesante
Vln. I
374 pizz.
Vln. II
237 ord.
vary bow pressure
Vla.
col legno batutto
240
Vc.
arco sul pont.

423
Vln. I
scratch bow hard
ord.
ffff
ffff
mp
ff
377
Vln. II
let ring
fz
(pizz)
p
fff
238
Vla.
pizz.
p
pizz tremolo
ff
242
Vc.
pizz.
p
col legno
batutto
fff
pizz.
pp
arco
ppp
ff

427
Vln. I
legato
f
ff
p
sf
pppp
380
Vln. II
(pizz)
f
mf
mp
sffz
p
sffz
mf
240
Vla.
arco
semplice
mf
f
mp
arco
244
Vc.
ffff
p
sffz
mp
f
ffff
pp

431

Vln. I

Vln. II

Vla.

Vc.

383

arco

sul tasto

legato

sul pont.

ord.

242

246

sul pont.

sul tasto

435

386

sul pont.

circular bowing

sul pont.

sul tasto

244

sostenuto

248

pizz.

col legno batutto

LH pizz

alternate pizz between R and L hands

arco

vary bow pressure

439

Vln. I

Vln. II

Vla.

Vc.

391

246

250

circular bowing

sul pont.

ord.

punta d'arco

pizz.

arco

col legno

sul tasto

443

394

248

252

batutto

447
Vln. I
sul pont.
ff
sfz
sffz
sffz
fff
2/4
mp
397
Vln. II
ord.
mf
ff
mf
ff
250
Vla.
mp
ff
mf
fz
mf
sffz
254
Vc.
pizz.
mf
f
pizz tremolo
sffz
pp
ffff

452
Vln. I
legato
ord.
f
400
Vln. II
ord.
p
ff
fff
sffz
252
Vla.
sul tasto
pppp
sul pont.
fff
mf
pp
ffff
256
Vc.
(pizz)
mp
ff
pp
ff
fz

456
Vln. I
mp
f
fff
15
f
ffff
403
Vln. II
pp
sfz
fz
mf
13
f
10
fff
mf
254
Vla.
sul pont.
vary bow pressure
scratch bow hard
fff
pp
ffff
258
Vc.
(pizz)
use LH pizz whenever you like
14
14
ffff
mf
p
9
arco
al tallone
5
fff
461
Vln. I
flautando
ord.
p
fff
13
406
Vln. II
con sord.
sul tasto
sul pont.
circular bowing
5
pp
mp
fff
mp
f
255
Vla.
ord.
mf
ff
15
p
f
12
13
pp
10
7
ff
mf
ff
260
Vc.
pizz.
13
11
f
5
fff
11
ppp
arco
ff
pp

flautando

circular bowing

Vln. I

465

p

15 15

mf

flautando

(sord)

senza sord.

ord.

Vln. II

409

f

mf

vary bow pressure

pp

Vla.

257

mf *pp* *fff* *mf* *sffz* *pppp* *f* *mf*

jete

Vc.

262

arco

mp *fff* *f* *sffz* *p* *sffz* sul pont. *mf*

ritenuto

pizz.

Vln. I

469

ff

pizz.

Vln. II

411

ff

pizz.

Vla.

259

ff

pizz.

Vc.

264

ff

Allegro moderato

arco
473 ♩= 103
con sord.
Vln. I
p
scratch bow hard
fff

arco
414 ♩= 123.6
con sord.
Vln. II
p
scratch bow hard
fff
ord.

arco
261 ♩= 129.5
con sord.
Vla.
p
scratch bow hard
fff

♩= 114.8
266 arco con sord.
Vc.
p
scratch bow hard
fff

Harmonics

Keep 15tet tuning but also play outside scale notes as standard tuning, such as Db, Eb, and Gb

con sord.
479
Vln. I
p
ff

Harmonics
con sord.
Keep 14tet but also play Db and other outside notes in standard tuning
420
Vln. II
p
sf
sfffz
ff

Harmonics
con sord.
Keep playing reduced set of 22tet during harmonics passages
265
Vla.
p
ff

Harmonics
con sord.
Keep playing reduced set of 26tet
269
Vc.
p
ff

ad libitum sul pont e sul tasto et al.

486

Vln. I

Vln. II

426

ad libitum sul pont e sul tasto et al.

269

Vla.

ad libitum sul pont e sul tasto et al.

272

Vc.

sul pont.

493

vary bow pressure

circular bowing

Vln. I

434

sul pont. vary bow pressure

Vln. II

sul pont.

vary bow pressure

271

Vla.

sul pont. vary bow pressure

275

Vc.

495
Vln. I
mp
fff
mp
439
Vln. II
mp
fff
f
mf
ppp
pizz.
275
Vla.
mf
278 pizz.
Vc.
mf
502
pizz.
Vln. I
p
445
pizz.
let ring
Vln. II
f
arco
sul pont.
ord.
279
Vla.
mf
f
fff
vary bow pressure
flautando
p
ppp
281
pizz.
Vc.
sfz
sffz
fz

509

Vln. I

Vln. II

451

Vla.

281

Vc.

284

arco

pizz.

pizz.

515

Vln. I

Vln. II

457

Vla.

285

Vc.

291

(pizz)

(pizz)

sul pont.

(pizz)

flautando

522

Vln. I

(pizz.) arco vary bow pressure

ffff fff

463

Vln. II

fff p ff

288

Vla.

ord.

ff mf fff mp ff

294

Vc.

arco *legato*

ff pp f fff

525

Vln. I

sffz

469

Vln. II

pizz.

ffff fff ff

292

Vla.

sul pont. flautando vary bow pressure

pp mf ppp mf

297

Vc.

sul pont. sul tasto punta d'arco

p f pp

532
475
294
300
539
481
299
303
Vln. I
Vln. II
Vla.
Vc.
pizz.
arco
ord.
sul pont.
sul tasto
flautando
let ring
al tallone
(pizz)

545

Vln. I

(pizz)

487 (pizz)

Vln. II

legato

303

Vla.

punta d'arco

sul tasto

306 pizz.

Vc.

Gb at normal tuning

550

Vln. I

arco

493 pizz.

Vln. II

punta d'arco

pizz.

307

Vla.

vary bow pressure

sul pont.

sul tasto

309 (pizz)

Vc.

arco

556
499
311
313
Vln. I
Vln. II
Vla.
Vc.
pizz.
pp
ff
mp
mf
ffff
pppp
ppp
arco
sffz
fff
p
563
505
315
316
al tallone
scratch bow hard

pesante

570

Vln. I

511

Vln. II

319 pizz.

Vla.

319

Vc.

cantabile

577

Vln. I

517 arco

Vln. II

323

Vla.

322 pizz.

Vc.

584
Vln. I
mp mf f pp
523
Vln. II
ff mf f ff
flautando
327
Vla.
pizz. f mf arco f fff p fffff pppp mp mf ff pp
325
Vc.
pizz. f pp sffz p sffz sfz ffff fz arco ppp

591
Vln. I
p pp mp f ff
530
Vln. II
vary bow pressure
p mp mf f ff fff sul pont. pp
331
Vla.
pizz. ff arco ord. f p ppp fff f pp flautando
328
Vc.
pizz. ff a la chitarra mp arco pppp pp ff

598
furioso
flautando
vary bow pressure
Vln. I
ff
pppp
f
ord.
536
Vln. II
mf
f
pp
f
335
ord.
Vla.
mp
f
flautando
circular bowing
scratch bow hard
ff
sffz
331
ord.
vary bow pressure
vary bow pressure
Vc.
f
pp
fff
p
ff
p
mp

603
sul pont.
con brio
ord.
flautando
Vln. I
mp
ff
pp
sul tasto
punta d'arco
541
Vln. II
p
mp
mf
339
sul pont.
ord.
pizz.
Vla.
f
pp
fff
334
pizz.
arco
sul tasto
ord.
Vc.
p
mp
sffz
pp
f

610

animato

ord.

Vln. I

f

fffff

scratch bow hard

fff

545

pizz.

Vln. II

mf

ff

f

343

a la chitarra

arco

flautando

ord.

sul pont.

Vla.

f

pppp

ppp

mf

f

337

pizz.

Vc.

mp

pp

p

mp

mf

fff

ppp

616

Vln. I

f

(pizz)

pp

mp

f

551

Vln. II

mf

f

ffff

sfz

sffz

mf

346

sul pont.

ord.

sul tasto

Vla.

f

fff

p

mp

340

(pizz)

Vc.

ff

ppp

mf

Double Harmonics

624

Vln. I

Vln. II

556 (pizz)

Vla.

351 sul pont. sul tasto ord. scratch bow hard

Vc.

343 (pizz)

632

Vln. I

Vln. II

563 (pizz) arco con sord. sul pont.

Vla.

356 ord.

Vc.

346 (pizz)

639
Vln. I
pizz.
567
Vln. II
(sord)
sul pont.
flautando
circular bowing
360
Vla.
sul CGD
al tallone
ord.
sul tasto
349
Vc.
(pizz)
646
Vln. I
arco
573
Vln. II
364
Vla.
ord.
punta d'arco
ord.
352
Vc.
col legno batutto

653
Vln. I
579
Vln. II
369
Vla.
353
Vc.
sul GDA
vary bow pressure
sul pont.
ord.
pizz.
657
sul DAE
vary bow pressure
flautando
ord.
sul pont.
585
ord.
sul GDA
vary bow pressure
sul pont.
sul tasto
373
vary bow pressure
circular bowing
pizz.
356
col legno batutto
pizz.
col legno

662

Vln. I

sul pont. pizz. pizz tremolo

588 pizz.

Vln. II

377 pizz.

Vla.

359 pizz. col legno batutto sul pont. arco

Vc.

667 pizz. arco

Vln. I

594 pizz.

Vln. II

381 pizz.

Vla.

362 sul pont. vary bow pressure flautando flautando

Vc.

674
Vln. I
600
Vln. II
385
Vla.
371
Vc.
rubato appassionato
sul pont.
vary bow pressure
a tempo
flautando
a tempo
meno mosso
scratch bow hard
a tempo
ritardando
f *pppp* *f* *ffff* *p* *fff* *pppp*

681
Vln. I
606
Vln. II
389
Vla.
374
Vc.
a tempo
arco
espressivo
mf *p* *mf* *mp* *p* *fff* *ffff* *pp* *mp* *sffz*

688
Vln. I
arco
mf
pizz.
sf sfz
612
Vln. II
arco
mf
mp
3 4
pizz.
ffff
393
Vla.
arco
mf
mp
pizz.
ffff
sffz
377
Vc.
arco
mf
14 4
mp
12 4
scratch bow hard
ffff
685
Vln. I
pizz.
p
ff
fff
619
Vln. II
pizz.
p
f
ff
397
Vla.
p
f
sffz
380
Vc.
sul pont.
pp
p
13 4
mp
ord.
12 4
ff

692

Vln. I

a tempo

arco

mf

ff

625

Vln. II

arco

f

pizz.

fff

401

Vla.

arco

p

mf

p

punta d'arco

pppp

383

Vc.

pizz.

pppp

mf

p

pizz.

fff

697

Vln. I

rubato *espressivo*

arco

a tempo

632

Vln. II

a tempo

con moto

a tempo

più mosso

poco rit.

ffff

pppp

fff

pp

f

mf

sffz

p

fffff

404

Vla.

386

Vc.

704
Vln. I
a tempo arco vary bow pressure ad libitum sul pont e sul tasto et al.
ffff

638
Vln. II
a tempo arco vary bow pressure ad libitum sul pont e sul tasto et al.
ffff pizz. *sffz* *sffz* *ff*

408
Vla.
a tempo arco vary bow pressure ad libitum sul pont e sul tasto et al.
ffff

389
Vc.
arco *a tempo* vary bow pressure ad libitum sul pont e sul tasto et al.
ffff pizz.

711
Vln. I
rubato *giocoso* *ritenuto* *a tempo* *a tempo* *molto rall.* *molto rit.* *l'istesso tempo* *più mosso* *accelerando*
pppp *p* *sffz* *sfz* *fz* *pppp* *ffff* *pp* *fffff*

644
Vln. II

412
Vla.

392
Vc.

tutti *a tempo* *con brio*

718

Vln. I

Vln. II

650 *a tempo* *con brio*

Vla.

416 *a tempo* *con brio*

Vc.

395

pizz.

725 *semplice* sul pont.

Vln. I

656 sul pont.

Vln. II

420 sul pont.

Vla.

sul pont.

398

Vc.

732 *a tempo* *stringendo*

Vln. I: arco — *ff* — 11/8 | 4/4 | 5/4 | 4/4 | 17/16 | 15/16 | 5/4 — *p*

662 *a tempo* *stringendo*

Vln. II: arco — *ff* — 6/4 | 4/4 | 19/16 | 4/4 | 17/16 | 7/4 — *fff*

424 *a tempo* *stringendo*

Vla.: arco — *ff* — 7/4 | 4/4 | 19/16 | 4/4 | 17/16 | 12/4

401 *a tempo* *stringendo*

Vc.: arco — *ff* — 6/4 | 4/4 | 20/16 | 4/4 | 6/4 | 7/4 — *fff*

740 pizz.

Vln. I: *mf* — 5/4 | 7/4 — *ffff* | 3/4 | 15/4

arco — circular bowing

671 pizz.

Vln. II: *mf* — 7/4 — *fff* — *ff* — *f* *sffz* — *fffff*

pizz.

432

Vla.: *mf* — 11/4 | 7/4 — *fff* | 8/4 | 3/4

409 pizz.

Vc.: *mf* — 13/4 — *fff* — *ffff*

Larghissimo Molto Troppo

745

Vln. I

arco

♩ = 8.57

5/4

ffff

677

Vln. II

arco

♩ = 11.9

7/4

ffff

438

Vla.

arco

♩ = 18.7

11/4

ffff

412

Vc.

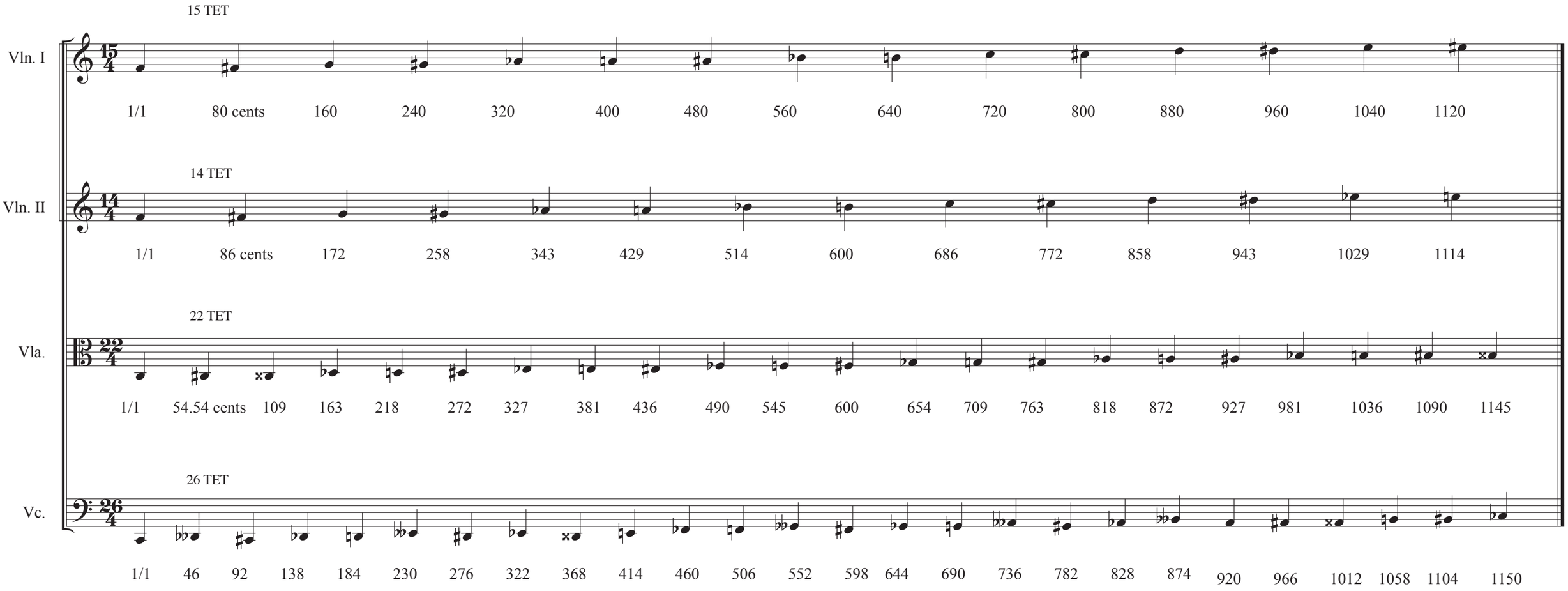
arco

♩ = 22.1

13/4

ffff

15/4 14/4 22/4 26/4

(@ 83-85')

Tuning Legend